CLAIMS

Sub 7 a'

1. An isolated polynucleotide fragment as shown in Figures 1, 2, 3 or 4, subsequence thereof, or corresponding RNA sequence thereof:

(a) encoding at least one porcine retrovirus (PoEV) expression product;
(b) encoding a derivative of said expression product displaying a physiological and/or immunological activity substantially similar to the physiological and/or immunological activity of said expression product as described in (a); or
(c) which is complementary to a polynucleotide sequence as defined in (a) or (b).

2. An isolated polynucleotide fragment according to claim 1:

(a) encoding at least one polypeptide having an amino acid sequence which is shown in Figures 3 or 4;
(b) encoding a derivative of said at least one polypeptide displaying a physiological and/or immunological activity substantially similar to the physiological and/or immunological activity of said expression product as described in (a); or
(c) which is complementary to a polynucleotide sequence as defined in (a) or (b).

3. An isolated polynucleotide fragment according to claim 1 or 2:

(a) encoding the polymerase (POL) polypeptide;
(b) encoding a derivative polypeptide displaying a physiological and/or immunological activity substantially similar to the physiological and/or immunological activity of the polymerase (POL) polypeptide as described in (a); or
(c) which is complementary to a polynucleotide sequence as defined in (a) or (b).

AMENDED SHEET

Sub 7 a'

4. An isolated polynucleotide fragment according to claim 2:

(a) encoding the virion core polypeptide (GAG) and/or envelope polypeptide (ENV);
(b) encoding a derivative polypeptide displaying a physiological and/or immunological activity of said virion core polypeptide (GAG) and/or envelope polypeptide (ENV) as described in (a), or
(c) which is complementary to a polynucleotide sequence as defined in (a) or (b).

5. An isolated polynucleotide fragment displaying at least 90% sequence identity with the sequence as shown in Figures 2 or 3:

(a) encoding the virion core polypeptide (GAG), polymerase (POL) and envelope polypeptide (ENV) of porcine retrovirus (PoEV);
(b) encoding a derivative polypeptide displaying a physiological and/or immunological activity substantially similar to the physiological and/or immunological activity of said GAG POL and ENV polypeptides as described in (a); or
(c) which is complementary to a polynucleotide sequence as defined in (a) or (b).

6. A recombinant nucleic acid molecule comprising a polynucleotide fragment according to any one of claims 1 to 5.

7. A recombinant nucleic acid molecule according to claim 6 wherein the recombinant nucleic acid molecule comprises regulatory control sequences operably linked to said polynucleotide fragment for controlling expression of said polynucleotide fragment.

Sub 7 a2

8. A vector comprising a recombinant nucleic acid molecule according to either of claims 6 or 7.

9. A vector according to claim 8 which is a virus or a plasmid.

10. A prokaryotic or eukaryotic host cell transformed by a polynucleotide fragment, recombinant nucleic acid molecule, or vector according to any of claims 1 to 9.

11. A recombinant PoEV polypeptide comprising an amino acid sequence as shown in Figure 3 displaying POL activity.

Sub 7 A3

12. A recombinant PoEV polypeptide comprising an amino acid sequence with at least 95% sequence identify to the GAG amino acid sequence as shown in Figure 3.

13. A recombinant PoEV polypeptide comprising an amino acid sequence with at least 75% sequence identity to the ENV amino acid sequence as shown in Figures 3 or 4.

14. A recombinant PoEV polypeptide comprising a sequence as shown in Figures 3 or 4, or derivative polypeptide displaying a physiological and/or immunological activity of the PoEV polypeptide.

15. A vaccine comprising a recombinant PcEV polypeptide according to any one of claims 11 to 14, or an inactivated PoEV virus and a pharmaceutically acceptable carrier.

16. An anti-PoEV antibody or fragment thereof raised against a polypeptide or derivative according to any one of claims 11 to 14.

17. A polynucleotide primer which is capable of specifically hybridising to a PoEV polynucleotide fragment as shown in Figures 1, 2, 3 or 4 and capable of initiating chain extension from the 3' end of the primer, but which is not able to correctly initiate chain extension from non PoEV sequences.

AMENDED SHEET

18. A polynucleotide probe which is capable of specifically hybridising under stringent conditions to a polynucleotide sequence as shown in Figures 1, 2, 3 or 4, but not to non PoEV sequences under stringent conditions.

19. A probe or a primer according to claims 17 or 18 which have substantial nucleotide sequence identity with a strand of the molecule depicted in Figures 1, 2, 3 or 4 or a strand complementary therewith, with a corresponding RNA molecule, or with a part of such a molecule.

20. A PoEV detection kit comprising a polynucleotide primer or probe according to any of claims 17 to 19.

21. Use of a PoEV specific polynucleotide primer or probe according to any of claims 17 to 19 in the detection of PoEV in a sample.

22. Use of a PoEV specific polynucleotide primer or primers according to either of claims 17 or 19 in a polymerase chain reaction for the detection of PoEV in a sample.

23. Porcine embryos, embryonic stem cells or cells containing totipotential nuclei capable of forming a viable embryo which have been manipulated by use of a polynucleotide sequence derived from the polynucleotide sequence shown in Figures 1, 2, 3 or 4 so as to not express an infectious, PoEV.

24. A pig obtainable from the porcine embryos, embryonic stem cells or cells containing totipotentional nuclei capable of forming a viable embryo according to claim 23.

25. Cells, tissues or organs obtainable from a pig according to claim 24.

Sub 7 a6

26. A recombinant PoEV polypeptide according to any one of claims 11 to 14 for use in the preparation of a vaccine.

27. Use of a polynucleotide primer or probe according to any of claims 17 to 19 in the preparation of a detection kit capable of detecting the presence of PoEV nucleic acid in a sample.

28. A polynucleotide; polypeptide; cells, tissues or organs according to any one of claims 1 to 5, 11 to 13 or 25 for use in therapy or diagnosis.

29. Use of a polynucleotide; polypeptide; cells, tissues or organs according to any one of claims 1 to 5, 11 to 13 or 25 in the preparation of a medicament for therapy or diagnosis.

30. The invention substantially as hereinbefore described.

Add 7 a7

Add C8

add 1 B1